

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) An optical transmitting device of modulating a modulated an optical signal by a first signal with and then by a second signal for transmission, the device comprises:

an optical splitting means for splitting the modulated optical signal modulated by the first signal into split optical signals, the optical signal modulated by the first signal including one or more harmonic distortions of the first signal;

a photoelectric conversion means for converting one of the split optical signals to an a converted electrical signal; and

a cancellation means for canceling interference against the one or more harmonic distortions of the first signal interfering with the second signal contained in the other of the split optical signals, by using the converted electrical signal.

2. (Currently Amended) The optical transmitting device as set forth in claim 1, wherein the cancellation means comprises:

a filter means for extracting the one or more harmonic distortions of the first signal interfering with the second signal an electrical signal of a frequency spectrum at least partially overlapped with a frequency spectrum of the second signal, in the converted electrical signal;

a phase adjustment means for adjusting a phase of the extracted electrical signal; and

a modulation means for modulating the other of the split optical signals with the phase-adjusted electrical signal.

3. (Currently Amended) The optical transmitting device as set forth in claim 1, wherein the cancellation means comprises:

a filter means for extracting the one or more harmonic distortions of the first signal interfering with the second signal an electrical signal of a frequency spectrum at least partially overlapped with a frequency spectrum of the second signal, in the converted electrical signal;

a phase adjustment means for adjusting a phase of the extracted electrical signal; and

a combining means for combining the phase-adjusted electrical signal and the second signal; and

a modulation means for modulating the other of the split optical signals with the combined signal.

4. (Previously Presented) The optical transmitting device as set forth in claim 1, wherein the first signal is an FM batch converted signal.

5. (Previously Presented) The optical transmitting device as set forth in claim 4, wherein the second signal is a satellite broadcasting RF signal.

6. (Currently Amended) An optical transmission system comprising the optical transmitting device as set forth in claim 5 and an optical receiving device ~~to receive for receiving~~ an optical signal transmitted via an optical path from the optical transmitting device, wherein the optical receiving device comprises:

an optical splitting means for splitting the received optical signal to an optical signal containing the FM batch converted signal and an optical signal containing the satellite broadcasting RF signal;

a first photoelectric conversion means for converting the optical signal containing the FM batch conversion signal split by the optical splitting means to an electrical signal;

a demodulation means for FM demodulating the electrical signal converted by the first photoelectric conversion means;

a second photoelectric conversion means for converting the optical signal containing the satellite broadcasting RF signal split by the optical splitting means to an electrical signal; and

a downconverting means for down-converting the electrical signal converted by the second photoelectric conversion means.

7. (Currently Amended) An optical transmission system comprising the optical transmitting device as set forth in claim 5 and an optical receiving device to receive for receiving an optical signal transmitted via an optical path from the optical transmitting device, wherein the optical receiving device comprises:

a photoelectric conversion means for converting the received optical signal to an electrical signal;

a filter means for separating the electrical signal converted by the photoelectric conversion means to the FM batch converted signal and the satellite broadcasting RF signal;

a demodulation means for FM demodulating the FM batch conversion converted signal separated by the filter means; and

a downconverting means for down-converting the satellite broadcasting RF signal separated by the filter means.

8. (Currently Amended) An optical transmitting method for modulating a modulated an optical signal by a first signal with and then by a second signal for

transmission, the method comprises:

splitting the modulated optical signal modulated by the first signal into split optical signals, the optical signal modulated by the first signal including one or more harmonic distortions of the first signal;

converting one of the split optical signals to an electrical signal; and
canceling interference against the one or more harmonic distortions of the first signal interfering with the second signal contained in the other of the split optical signals using the converted electrical signal.

9. (Currently Amended) The optical transmitting method as set forth in claim 8, wherein the canceling step comprises:

extracting the one or more harmonic distortions of the first signal interfering with the second signal an electrical signal of a frequency spectrum at least partially overlapped with a frequency spectrum of the second signal, in the converted electrical signal;

adjusting a phase of the extracted electrical signal; and
modulating the other of the split optical signals with the phase-adjusted electrical signal.

10. (Currently Amended) The optical transmitting method as set forth in claim 8, wherein the canceling step comprises:

extracting the one or more harmonic distortions of the first signal interfering with the second signal an electrical signal of a frequency spectrum at least partially overlapped with a frequency spectrum of the second signal, in the converted electrical signal;

adjusting a phase of the extracted electrical signal; and
combining the phase-adjusted electrical signal and the second signal; and
modulating the other of the split optical signals with the combined signal.

11. (Previously Presented) The optical transmitting method as set forth in any one of claims 8 to 10, wherein the first signal is an FM batch converted signal.

12. (Previously Presented) The optical transmitting method as set forth in claim 11, wherein the second signal is a satellite broadcasting RF signal.

13. (Currently Amended) An optical transmission method comprising steps of:

transmitting ~~a modulated~~ the optical signal modulated by the FM batch converted signal and the satellite broadcasting RF signal in accordance with the optical transmitting method as set forth in claim 12;

receiving and splitting the transmitted optical signal into an optical signal containing the FM batch converted signal and an optical signal containing the satellite broadcasting RF signal;

converting the split optical signal containing the FM batch converted signal to an electrical signal for demodulation; and

converting the split optical signal containing the satellite broadcasting RF signal to an electrical signal for downconversion.

14. (Currently Amended) An optical transmission method, comprising steps of:

transmitting ~~a modulated~~ the optical signal modulated by the FM batch converted signal and the satellite broadcasting RF signal in accordance with the optical transmitting method as set forth in claim 12;

receiving and converting the transmitted optical signal to an electrical signal; separating the converted electrical signal to a signal containing the FM

batch converted signal and a signal containing the satellite broadcasting RF signal;
demodulating the separated signal containing FM batch converted signal;
and
downconverting the separated signal containing the satellite broadcasting
RF signal.